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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/721,326	11/22/2000	Michael J. Barrett	A0602/7002	7238

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EXAMINER
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MARCELO, MELVIN C

ART UNIT	PAPER NUMBER
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2616

DATE MAILED: 05/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/721,326

Applicant(s)

BARRETT ET AL.

Examiner

Melvin Marcelo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE \_\_\_\_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) See Continuation Sheet is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) See Continuation Sheet is/are allowed.
- 6) ☒ Claim(s) See Continuation Sheet is/are rejected.
- 7) ☒ Claim(s) 61, 103 and 127 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 November 0200 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

Continuation of Disposition of Claims: Claims pending in the application are 2,4-7,10,13-16,18-22,24,27-31,35,40-47,63-86,88,89,102,103,108,117-120,122-137,143-145,148-152 and 4961.

Continuation of Disposition of Claims: Claims allowed are {2,4-7,10,13,14,49-57,122-124,133,148}, {30,31,35,40-47,129-132 and 149} and {68-86,88,89,135-137 and 152}.

Continuation of Disposition of Claims: Claims rejected are {15,16,18-22,24,27-29,58-60,63-67,125,126,128 and 134} and {151,102,108,117-120 and 143-145}.

## DETAILED ACTION

### *Claim Objections*

1. Claim 14 is objected to because of the following informalities: In line 2, "the is" should be --there is--. Appropriate correction is required.

### *Response to Arguments*

2. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 151, 102, 117, 119, 120, 144 and 145 rejected under 35 U.S.C. 102(b) as being anticipated by Shyu (US 5,428,544 A).

The Shyu patent was published earlier than applicant's priority documents. With respect to the claims below, references to the prior art appear in parenthesis.

### Claims

151 . (new) A vehicular communication network comprising:

*a plurality of passenger vehicles located on vehicular pathways and being adapted to transmit and receive signals to and from one another (Shyu, Figure 2, wherein vehicles on the pathways transmit and receive signals to and from one another, column 1, lines 58-66); and*

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*a pathway station adapted to monitor the plurality of passenger vehicles and signals along the vehicular pathways (Alternative embodiment includes a receiving station, column 6, lines 30-40);*

*wherein the plurality of passenger vehicles includes:*

*a first passenger vehicle equipped with a first transmitter/receiver unit adapted to transmit an information signal containing information (Figure 2 and column 2, line 58 to column 3, line 2, vehicle "c" is the first vehicle);*

*a second passenger vehicle equipped with a second transmitter/receiver unit adapted to receive the first information signal from the first transmitter/receiver unit and to retransmit at least a portion of the first information signal (Vehicle "d" is the second vehicle, wherein a portion of the first information signal (traffic information) received is not completely retransmitted since it is processed and updated, column 3, lines 49-59 and column 4, lines 28-43); and*

*a third passenger vehicle equipped with a third transmitter/receiver unit adapted to receive at least the portion of the information signal from the second transmitter/receiver unit (Vehicle "e" is the third vehicle).*

*102. (currently amended) The vehicular communication network as claimed in claim 151, wherein the information signal is digitally encoded with the information (Figure 3, Output Information Encoder 17, wherein the Microcomputer 1 is digital).*

*117. (currently amended) The vehicular communication network as claimed in claim 151, wherein the passenger vehicles are ground vehicles (Figure 1 shows vehicles on a road).*

*119. (currently amended) The vehicular communication network as claimed in claim 117, wherein the information includes traffic information (Column 3, lines 49-51).*

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120. (currently amended) *The vehicular communication network as claimed in claim 117, wherein the information includes information regarding at least one of a heading and a position of at least one of the passenger vehicles (Figure 5, Information of Position & Direction of the Vehicle 110).*

144. (currently amended) *The vehicular communication network as claimed in claim 151, wherein the pathway station is adapted to monitor a position and a velocity of the plurality of passenger vehicles along the vehicular pathways (Figure 5, Information of Position & Direction of the Vehicle 110 and driving speed in column 1, lines 58-62).*

145. (currently amended) *The vehicular communication network as claimed in claim 151, wherein the pathway station is adapted to transmit signals to the plurality of passenger vehicles and to receive signals from the plurality of passenger vehicles (Receiving station transmits and receives traffic information to and from vehicles, column 6, lines 30-40).*

**Claim Rejections - 35 USC § 103**

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 118 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu.

Shyu does not teach that the traffic information includes weather information. However, Shyu discusses the prior art, wherein information about traveling conditions are exchanged which includes both traffic and weather information (column 1, lines 36-48). A skilled artisan would have been motivated to exchange weather information among the vehicles in Shyu for the reason that fog and rain affect traffic as taught in the prior art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the

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vehicles in Shyu to exchange information that affects traffic such as weather conditions. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

*118. (currently amended) The vehicular communication network as claimed in claim 117, wherein the information includes weather information (Shyu, fog and rain in the prior art information about traveling conditions, column 1, lines 36-48).*

7. Claim 108 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu in view of Alanyali et al. ('On Simple Algorithms for Dynamic Load Balancing').

Shyu does not teach additional receiving stations in their system. Alanyali teaches a plurality of fixed stations in a wireless network (Figure 1 and page 230) for the purposes of load balancing, "whereby the load is allocated across resources as evenly as possible." Therefore, it would have been obvious to provide additional receiving stations which are fixed stations in Shyu for the reason that "load balancing" is a known technique used in wireless systems to distribute load among fixed stations. With respect to the claims below, references to the prior art appear in parenthesis.

Claims

*108. (currently amended) The vehicular communication network as claimed in claim 151, further comprising an additional pathway station that assumes control of at least some of the plurality of passenger vehicles, to prevent overloading of the pathway station (Alanyali, load balancing is a known technique in wireless systems).*

8. Claim 143 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu in view of Newton's Dictionary definition for 'FDMA'.

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Shyu does not teach different frequencies for the first and second transmitter/receiver units. However, FDMA is a known technique for using multiple frequencies in a wireless network in order to permit multiple users in a finite frequency resource (see Newton's Dictionary definition for 'FDMA' on page 479). Therefore, it would have been obvious to use FDMA in Shyu for the reason that a skilled artisan would have been motivated to permit multiple vehicles to communicate simultaneously since the vehicles may be in range of each other for only a short period of time. With respect to the claims below, references to the prior art appear in parenthesis.

#### Claims

*143. (currently amended) The vehicular communication network as claimed in claim 151, wherein the first transmitter/receiver unit is adapted to re-transmit the information signal at a first frequency, and wherein the second transmitter/receiver unit is adapted to re-transmit the information signal at a second frequency (FDMA which is use of multiple frequencies is a known technique in wireless systems, Newton's Dictionary of 'FDMA').*

9. Claims 15, 16, 18, 19, 21, 22, 24, 27, 28, 29, 58, 59, 60, 63, 64, 65, 66, 67, 125 and 126 rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu in view of Farmer et al. (US 6,085,151 A).

Shyu does not explicitly teach a directional multibeam antenna, but appears to suggest an antenna capable of transmitting and receiving from certain directions (column 2, lines 51-57). However, Farmer teaches that a directional multibeam antenna is used in vehicles since objects can approach the vehicle from a number of directions (column 6, line 54 to column 7, line 5). Therefore, it would have been obvious to use a directional multibeam antenna in Shyu for the



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reason that vehicles can approach each other from numerous directions. With respect to the claims below, references to the prior art appear in parenthesis.

#### Claims

15. (previously presented) A system that provides information to and from a second passenger vehicle (**Shyu, Figure 2**), comprising:

*a transmitter unit, located at an information source, that transmits the information signal* (**Vehicle "c" transmits traffic information signal, column 2, line 58 to column 3, line 2**);

*a first transmitter/receiver unit located on a first passenger vehicle that is located on a pathway within a signal coverage area of the information source, that receives the information signal and that re-transmits the information signal* (**Vehicle "d" retransmit the traffic information signal**);

*a directional multibeam antenna, coupled to the first transmitter/receiver unit, that re-transmits the information signal in a plurality of directions, at least one of the plurality of directions being along the pathway* (**Farmer teaches using a directional multibeam antenna since objects can approach a vehicle from numerous directions (see Figure 1)**);

*an additional transmitter/receiver unit located on a third passenger vehicle, that receives the information signal from the first transmitter/receiver unit and re-transmits the information signal to provide the information signal between the source and the second passenger vehicle* (**Vehicle "d" is an additional transmitter/receiver that retransmits the traffic information signal to vehicle "e"**);

*an additional directional antenna coupled to the additional transmitter/receiver unit that re-transmits the information signal along the pathway* (**Antenna for Transmitter 7 in Figure 3 must inherently be directional since it has to point to a certain directions, column 2, lines 51-57**); and

*a receiver, located on the second passenger vehicle that is located on the pathway, the receiver adapted to receive the information signal from the additional transmitter/receiver unit (Vehicle "e" is the second passenger vehicle on the pathway).*

*16. (previously presented) The system as claimed in claim 15, wherein the first passenger is located on the pathway and in an area where there is another, already existing communication channel (Obvious that existing communication channel may be present at locations where there are a plurality of vehicles located near each other at the same time. For example, at the intersection N2 in Figure 2, vehicle "f" may approach the intersection while vehicles "e" and "d" have an existing communication channel).*

*18. (previously presented) The system as claimed in claim 15, wherein the passenger vehicles are ground vehicles (Figure 2 shows vehicles on a road).*

*19. (previously presented) The system as claimed in claim 15, wherein the passenger vehicles are aircraft (It would have been obvious to adopt Shyu's system in an air traffic system for the reason that aircraft is a vehicle and air traffic occurs on pathways similar to roads).*

*21. (previously presented) The system as claimed in claim 15, wherein at least two of the passenger vehicles are traveling in opposite directions along the pathway (Figure 2).*

*22. (previously presented) The system as claimed in claim 15, wherein at least two of the passenger vehicles are located on parallel pathways (Figure 1, parallel pathways with vehicles in opposite directions).*

*24. (previously presented) The system as claimed in claim 15, wherein the third passenger vehicle is located on a second pathway that intersects the pathway (Vehicle "d" is located on a pathway that intersects the pathway of vehicle "e").*

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27. (previously presented) *The system as claimed in claim 15, wherein the third passenger vehicle is not located on a pathway (It is obvious that a vehicle may deviate from the pathway such as a vehicle going off the road).*

28. (previously presented) *The system as claimed in claim 15, further comprising a supplemental communication network that communicates directly with the second passenger vehicle that is located in an area where there are insufficient other passenger vehicles available to provide the information signal to the second passenger vehicle (Shyu teaches a supplemental communication network that uses a receiving station (column 6, lines 30-40), wherein it would have been obvious to locate the receiving station in areas where there are insufficient other passenger vehicles for the reason that navigation data may be required in deserted areas where a vehicle can easily get lost).*

29. (previously presented) *The system as claimed in claim 15, further comprising:*

*at least one pathway station that monitors the passenger vehicles along the pathway (Receiving station in column 6, lines 30-40); and*

*a pathway control station, coupled to the pathway station and to an existing communications network, that controls communication between the pathway station and the existing communication network (Central computer system controls transceiver posts that act as a pathway station, wherein it would have been obvious to provide an existing communication network in order to provide information regarding queries by the vehicles or to transmit the records of toll collection).*

58. (previously presented) *The system as claimed in claim 15, wherein the transmitter includes a directional antenna adapted to transmit the information signal along the pathway (Antenna for Transmitter 7 in Figure 3 must inherently be directional since it has to point to a certain directions, column 2, lines 51-57).*

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59. (previously presented) The system as claimed in claim 15, wherein the second passenger vehicle and the third passenger vehicle each includes an interface adapted to receive the information in the information signal and to provide the information for access by a passenger associated with second passenger vehicle and the third passenger vehicle, respectively (**Figure 4 shows the indicator for displaying traffic information for the passenger**).

60. (previously presented) The system as claimed in claim 15, wherein the information signal is digitally encoded with the information (**Figure 3, Output Information Encoder 17, wherein the Microcomputer 1 is digital**).

63. (previously presented) The system as claimed in claim 15, wherein the information includes weather information (**Shyu, fog and rain in the prior art information about traveling conditions, column 1, lines 36-48**).

64. (previously presented) The system as claimed in claim 15, wherein the information includes traffic information (**Column 3, lines 49-51**).

65. (previously presented) The system as claimed in claim 15, wherein the information includes information regarding at least one of a location and a heading of at least one of the passenger vehicles (**Figure 5, Information of Position & Direction of the Vehicle 110**).

66. (previously presented) The system as claimed in claim 15, wherein at least one of the passenger vehicles is configured to allow a passenger to alter direction of travel of the passenger vehicle in response to the information (**Vehicle a2 becomes navigatable (i.e. altering directional of travel) since it utilizes the traffic information for navigation purposes, column 2, lines 19-34**).

125. (previously presented) The system as claimed in claim 29, wherein the pathway station is adapted to monitor a position and velocity of the passenger vehicles along the pathway (**Figure**

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**5, Information of Position & Direction of the Vehicle 110 and driving speed in column 1, lines 58-62).**

*126. (previously presented) The system as claimed in claim 29, wherein the pathway station is adapted to send signals to the passenger vehicles and to receive signals from the passenger vehicles (Receiving station in column 6, lines 30-40).*

10. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu and Farmer and further in view of Alewine et al. (US 6,150,961 A).

Shyu does not teach vehicles traveling in the same direction along the pathway. However, Alewine teaches communicating between vehicles traveling in the same direction for the purpose of exchanging traffic information (Figures 4 and 5). Therefore, it would have been obvious to modify Shyu to exchange traffic information between vehicles traveling in the same direction for the reason that such modification provides vehicles on multi-lane highways that cannot communicate directly with the fixed station (120 in Figure 5 and column 4, line 65 to column 5, line 16) access to traffic information via an indirect communication with the vehicle closest to the fixed station (502). With respect to the claims below, references to the prior art appear in parenthesis.

#### Claims

*20. (previously presented) The system as claimed in claim 15, wherein at least two of the passenger vehicles are traveling in the same direction along the pathway (Alewine, Figure 5).*

11. Claim 67 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu and Farmer et al. and further in view of Alanyali et al.

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Shyu does not teach additional receiving stations in their system. Alanyali teaches a plurality of fixed stations in a wireless network (Figure 1 and page 230) for the purposes of load balancing, "whereby the load is allocated across resources as evenly as possible." Therefore, it would have been obvious to provide additional receiving stations which are fixed stations in Shyu for the reason that "load balancing" is a known technique used in wireless systems to distribute load among fixed stations. With respect to the claims below, references to the prior art appear in parenthesis.

#### Claims

67. *(previously presented) The system as claimed in claim 29, further comprising an additional pathway station that assumes control of at least some of the passenger vehicles to prevent overloading of the pathway station (Alanyali, load balancing is a known technique in wireless systems).*

12. Claims 128 and 134 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shyu and Farmer et al. and further in view of Newton's Dictionary definition of 'FDMA'.

Shyu does not teach different frequencies for the first and second transmitter/receiver units. However, FDMA is a known technique for using multiple frequencies in a wireless network in order to permit multiple users in a finite frequency resource (see Newton's Dictionary definition for 'FDMA' on page 479). Therefore, it would have been obvious to use FDMA in Shyu for the reason that a skilled artisan would have been motivated to permit multiple vehicles to communicate simultaneously since the vehicles may be in range of each other for only a short period of time. With respect to the claims below, references to the prior art appear in parenthesis.

#### Claims

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128. (previously presented) *The system as claimed in claim 15, wherein the first transmitter/receiver unit is adapted to re-transmit the information signal at a first frequency, and wherein the additional transmitter/receiver unit is adapted to re-transmit the information signal at a second frequency* **(FDMA which is use of multiple frequencies is a known technique in wireless systems, Newton's Dictionary of 'FDMA').**

134 (previously presented) *The system as claimed in claim 15, wherein the multibeam antenna is adapted to transmit the information signal in a first direction at a first frequency and to transmit the information signal in a second direction at a second frequency* **(FDMA which is use of multiple frequencies is a known technique in wireless systems, Newton's Dictionary of 'FDMA').**

#### ***Allowable Subject Matter***

13. Claims {2,4-7,10,13,14,49-57,122-124,133,148}, {30,31,35,40-47,129-132 and 149} and {68-86,88,89,135-137 and 152} are allowed.

14. Claims 61, 103 and 127 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melvin Marcelo whose telephone number is 571-272-3125. The examiner can normally be reached on Mon-Fri 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wellington Chin can be reached on 571-272-3134. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Melvin Marcelo  
Primary Examiner  
Art Unit 2616

May 1, 2006